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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,216	09/11/2003	Sanjay George Mathias	130128	7700

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EXAMINER
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KISH, JAMES M

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/660,216

Applicant(s)

FAKE

Examiner

James Kish

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/11/03</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyazaki (US Patent No. 6,144,201). Miyazaki discloses acquiring an ECG signal from a patient, applying a time delay and performing ECG-gated MR scanning. At first, an optimum delay time is determined using a plurality of preparing images and an acquired ECG. The imaging MR scan with the region of the patient is then performed in synchronization with the appropriate or optimum ECG-gating time instant (see Abstract). Column 6, line 28 through column 7, line 21 for specific systems of the MRI device.

Claims 1-3 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Gober (US Patent No. 5,052,398). Gober discloses a QRS filter for real time heart imaging with ECG monitoring in the magnetic field of an NMR imaging system. A filter according to the present invention comprises a low pass filter for attenuating those portions of the QRS signal applied as an input above a given frequency. The low pass filter imposes a first given phase shift on the output signal relative to the input signal. This is then fed through a high pass filter that applies another phase shift (column 2, lines 6-28). Also see column 4, lines 42-68 for descriptions of Figure 4a.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8-16 and 22-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Manning et al (US Patent No. 6,501,979). Manning discloses a method and apparatus for gated imaging of a patient by combining information from an electrocardiogram (ECG) and a peripheral pulse signal (PPU). The PPU signal is defined as any representation of the pulsatile flow of blood in an artery (column 3, lines 10-15). The MR apparatus comprises an ECG unit for obtaining ECG signals from the patient in the examination zone, PPU unit for obtaining ECG signals present in the patient in the examination zone, and a synchronization unit which receives the ECG and PPU signals and generates synchronization signals for the MR apparatus by combining information from both the received ECG and the received PPU signals (column 7, lines 11-20). The PPU and the ECG are combined as described in the passage starting at column 3, line 59 and ending at column 4, line 22. The system is described at column 4, lines 48-61 and comprises a radio frequency coil assembly, as well as structures inherent to MRI systems. The system also creates positive and negative verification signals to indicate whether an acquired image should be discarded and retaken (column

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11, lines 49-59). See all of column 13 for a description of the preferred embodiment, also illustrated in Figure 5. One embodiment includes a computer readable media carrying encoded program instructions for causing a medical imaging apparatus to perform the claimed invention (column 5, lines 53-55).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gober in view of Manning et al. Gober discloses a QRS filter for real time heart imaging with ECG monitoring in the magnetic field of an NMR imaging system. However, Gober does not discuss rejecting or accepting the ECG signals. Manning teaches comparing two ECG signals and providing a positive or negative verification signal. As defined, the PPU described by Manning is any representation of the pulsatile flow of blood in an artery and is therefore being interpreted by the Examiner as the filtered ECG signal provided by Gober. As can be seen from graph (a) of Figure 4a of Gober, the signal is non-zero only during the R-wave of the cardiac cycle and therefore would be able to implement a black-out/windowing interval as described by Manning et al. in column 4, lines 1-22. Therefore, it would be obvious for one having ordinary skill

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in the art at the time the invention was made to combine the filtering techniques disclosed by Gober with the ECG comparisons of Manning et al. for the reason discussed above.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Kish whose telephone number is 571-272-5554. The examiner can normally be reached on 8:30 - 5:00 ~ Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK

  
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